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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/965,426
Filing Date: September 27, 2001
Appellant(s): MERRIMAN ET AL.

John C. Gatz
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 31, 2007 appealing from the Office action mailed February 23, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner, which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

This appeal is related to the appeal filed in Application No. 10/190,375. The Notice of Appeal was filed on February 6, 2007 and the corresponding appeal brief was filed on April 6, 2007 and amended brief filed on June 5, 2007 and July 25, 2007.

This appeal is related to the appeal filed in Application No. 09/915,150. The Notice of Appeal was filed on May 10, 2007 and the corresponding appeal brief was filed on July 12, 2007.

The Examiner is not aware of any other related appeals and interferences.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of the claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,686127	Stockley III et al	11-1997
3,459, 117	Koch et al.	8-1969
4,522,835	Woodruff et al.	6-1985
6,042,859	Shaklai	3-2000
5,629,060	Garwood	5-1997

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Rejection Number 1

(1) Claims 38, 40-56, 76, 78-86, 119, 121,123-138, 140, 142-157, 159, 161-168 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stockley III et al. (US 5686127) in view of Koch et al. (US 3459117) and Woodruff et al. (US 4522835) and Shaklai (US 6042859).

Stockley et al., hereinafter Stockley, teaches supplying a first polystyrene foam tray as recited in claims 41,51,79,84,123,132,142,151,161,166 placing a retail meat in the tray, preferably removing oxygen to less than 0.5%, or even less than 0.05% (or less than 500 ppm), as recited in claims 44,45,81,82,125,126,144,145,163,164, to inhibit or prevent the formation of metmyoglobin by gas flushing with carbon dioxide and/or

nitrogen as recited in claims 47,48,50,128,129,147,148, or alternatively removing oxygen by vacuum as recited in claims 46,127,146,sealing the tray with a first oxygen permeable layer polyolefin overwrap as recited in claims 52,133,152,157, sealing a second oxygen impermeable layer to the first layer wherein the second layer is peelably removable from the first layer, as recited in claims 40,78,121,140,159, and removing the second layer without removing the first as recited in claims 38,76,157, to expose the meat to oxygen so that the meat is red in color for retail display, as recited in claim 42, 119,138 (Column 1, lines 1-62, Column 5, lines 2-8, 32-36, Column 7, lines 8-30, Column 8, lines 23-64). Stockley is silent in teaching 0.1-0.8%,0.3-0.5% , or 0.1-0.5%, carbon monoxide in addition to the carbon dioxide and nitrogen or just carbon dioxide to form carboxymyoglobin, as recited in claims 38,50,55,56,76,85,86,119, 131,136, 137, 138, 150,155,156,157,167,168, using an oxygen scavenger as recited in claims 43,80,124,143,162, converting deoxymyoglobin directly to carboxymyoglobin as recited in claim 54,135,154 or oxymyoglobin to carboxymyoglobin as recited in claim 53,134,153, the particular level of carbon dioxide and nitrogen in combination as recited in claims 49, 83, 131,149, 165, and wherein the carbon monoxide is associated with the raw meat is adapted to be removable after the second layer is removed, as recited in claims 38,76,119,138, and157.

Koch et al., hereinafter Koch, is also concerned with providing a red-colored meat at the retail outlet. Koch teaches a bright red color is needed to make meat attractive for sale. However, Koch teaches of maintaining the red color at the retail outlet for a longer time period by contacting the surface of the meat with carbon monoxide (CO). Koch teaches of wrapping a meat with CO containing film under a modified atmosphere, whereby the CO is transferred from the film to contact the surface of the meat so that carboxymyoglobin is formed on the meat surface(Column 1, lines 23-50, Column 2, line 67 to Column 3, line3, Column 3, line 49 to column 4,line 10). Koch also teaches that the meat will remain a "saleable" red color for as long as 10 days when the modified atmosphere package remains in contact with the meat for 7 days , and the modified atmosphere CO-containing package is removed from contact with the meat for 3 days (

replaced by a conventional wrapper) at the retail outlet (Column 3, lines 4-16). Thus, Koch teaches that CO is removably associated with a meat surface since the color remains red for only a finite time after the CO-containing wrapper is removed. Koch is also treating red meat with carbon monoxide by providing a cover which when placed in contact with an exposed surface of red meat, releases CO into contact with the meat to form carboxymyoglobin on the surface of the meat (Column 1, lines23-50, Column 2, line 67 to Column 3, line3, Column 3, line 49 to column 4,line 10). Koch teaches that a meat surface that has been exposed to 0.08 cc of CO per square inch area can maintain the red meat color for 7 days during storage under a modified atmosphere with CO, will remain red in color for 3 days after being removed from the modified atmosphere packaged and packaged in conventional cover or wrapper at the retail outlet (Column 3, lines 4-16 and 41-45), i.e., meat exposed to ambient atmosphere after being exposed to CO will not remain red after 3 days at a retail establishment. Thus, Koch provides evidence that CO is removably associated with a meat surface so that the meat browns "within a natural time period" because the meat generally has a shelf life of 3 days after being removed from the modified atmosphere package and placed in a conventional display wrapper.

Woodruff et al., hereinafter Woodruff also teaches meat that is stored in a refrigerated or frozen state under low oxygen conditions prior to final sale/consumption packaging. Woodruff teaches that removing the O_2 causes the meat to turn purple, but by including carbon monoxide in the package a desirable red color, or the same color as fresh meat, is provided during storage. Woodruff further teaches only the first 0.25 inch of the meat are actually affected by the CO. Woodruff further teaches treating and storing meat in a reduced oxygen modified atmosphere of 0.1-3% CO, with at least 10% CO_2 , or preferably 20-60% CO_2 , 40-80% N_2 , and 0% O_2 and convert deoxymyoglobin to carboxymyoglobin on the surface of the meat, wherein the O_2 is removed by evacuation or flushing, as taught by Stockley and further alternatively using a scavenger for a sufficient time period to remove the oxygen (Abstract, Column 1, line 63 to Column 3,

line 30, Examples). Thus, whereas Koch teaches film containing CO for turning the surface of a meat red, Woodruff teaches of a gaseous mixture with CO for turning the surface, or to a depth of 0.25 inch, of a meat red. Woodruff who also is concerned with the color of meat during storage in a low oxygen atmosphere, teaches storing a meat with a gas mixture that contains 10-85% CO_2 (Column 3, line 8), rest substantially N_2, i.e., about 90-15% (Column 3, lines 9-11) and low O_2, 0-30% and as close to 0% as practicable (column 3, lines 12-14 and column 4, lines 1-2), which all fall in the instantly claimed ranges for CO_2, N_2 and O_2 in the meat package. Woodruff teaches of 0.1 to 3% preferably 0.1 to 1% carbon monoxide or CO (Column 2, lines 5-10 and lines 43-44). At this particular level of CO, Woodruff teaches that only the first 0.25 inch of the meat surface undergoes a conversion of deoxymyoglobin to carboxymyoglobin. Woodruff also teaches that the meat is stored in these conditions prior to final sale/consumption packaging (Abstract, Column 1, line 63 to Column 3, line 30, Examples).
Woodruff further teaches the level of CO selected depends on certain factors such as:
(1) The particular type of meat treated, as taught by Woodruff in example VI that pork and lamb require less CO (0.25% and 0.5%) than beef (Column 7, lines 55-59).
(2) The time period between exposure to a non-carbon monoxide/non-oxygen atmosphere prior to exposing the meat to carbon monoxide as explained in examples IV, V and VI where Woodruff teaches that concentrations of CO less than 1% (such as 0.25% and 0.5%) may be effective when sufficient time is allowed after inert gas flushing to convert oxymyoglobin to reduced myoglobin on the surface of meat (Column 6, lines 52-56). In another example Woodruff teaches that CO concentration of 0.25% by volume would be sufficient where oxymyoglobin is converted to reduced myoglobin before conversion of carboxymyoglobin is effected (Column 7, lines 14-17).
Therefore Woodruff teaches that 0.1% to about 1% of carbon monoxide by volume in the modified atmosphere of packaged meat is effective in maintaining the good color in meat during storage.

Shaklai is relied on as evidence that the color of meat pigment exposed to CO is *not* fixed and that the meat surface will brown upon exposure to air depending on the time the meat is exposed to the CO (Column 8, lines 10-30). In Example 2, Shaklai teaches of meat stores for 30 minutes in CO atmosphere prior to its exposure to air (ambient atmosphere), the meat became brown within 24 hours after exposure to air, which is "within a natural time period" since meat generally may take up to 3 days after exposure to the air or ambient atmosphere to brown. In Example 4, Shaklai also teaches that when meat is preserved in a 100% CO environment for 21 days so that the entire meat becomes red, the outer 1mm eventually becomes brown in 14 days after removing the meat from the CO enriched environment and exposing the meat to air (Example 4 in light of Example 3 in Column 9), i.e., Shaklai even provides evidence that after prolonged exposures to 100% CO the meat pigment is *not fixed* as carboxymyoglobin but is reversibly bound to CO as the meat turns brown due to the formation of metmyoglobin on the surface. Thus Shaklai also teaches that meat pigment or myoglobin, which is bound to CO (bright red carboxymyoglobin), is not fixed and turns brown (metmyoglobin) upon removal from the modified atmosphere and upon exposure to ambient atmosphere or air.

Therefore, it would have been obvious to modify the carbon dioxide/nitrogen atmosphere taught by Stockley and include anywhere from 0.1-0.8% carbon monoxide as recited in claims 38, 50, 55, 56, 76, 85, 86, 119, 131,136, 137, 138, 150, 155, 156, 157, 167, 168, since Koch et al. teach it is desirable to expose the surface of a meat to CO during modified atmosphere storage so that the meat surface will turn red and remain a saleable red color for an extended but finite time when the meat is exposed to room atmosphere at the retail outlet and Woodruff et al. how to expose the surface of a meat to CO during modified atmosphere storage so that the meat surface (i.e. down to 0.25 inch) will turn red: including 0.1-0.8% CO in the modified atmosphere gas composition. Furthermore, one would expect that modified Stockley (i.e. with the 0.1-0.8% CO of Woodruff) would result in a package wherein the carbon monoxide being adapted to be removable from the meat when the second layer is removed, or when the

meat is exposed to room air, as recited in claims 38,76,119,138, and 157, since Koch teaches CO treated meat will only remain red for a finite time after being exposed to normal room air (e.g. 3 days if the surface is exposed to CO for 7 days), Woodruff teaches that 0.1-0.8% CO only affects 0.25 inch from the surface of the meat, and Shaklai teaches even CO-saturated meat will lose its red color to the depth taught by Woodruff (i.e. 0.25 inch) within 14 days of exposure to room air .

It would have been further obvious to modify the carbon dioxide/nitrogen mix taught by Stockley and select 40-80% nitrogen, and 20-60% carbon dioxide as recited in claims 49, 83, 131,149, 165 since Woodruff teaches 0.1-0.8% carbon monoxide in combination with a at 40-80% nitrogen/ 20-60% carbon dioxide blend will provide the desirable red color of fresh meat for meat stored within a low/no oxygen modified atmosphere. It would have been further obvious to modify Stockley and use an oxygen scavenger as recited in claims 43,80,124,143,162, depending on the time allotted to the manufacture to achieve a low oxygen environment since Woodruff teaches that obtaining a low oxygen environment may be achieved by a variety of ways such as evacuation and flushing as taught by Stockley, or alternatively with the addition of an oxygen scavenger wherein *sufficient* time is required to deplete the oxygen level. With respect to forming carboxymyoglobin from deoxymyoglobin or oxymyoglobin, as recited in claims 53,54,134,135,153, and 154, forming the carboxymyoglobin from either would have depended on the level of oxygen remaining in the modified atmosphere after flushing since Stockley III et al. teach such packages may contain anywhere from less than 0.5% to less than 0.05% oxygen.

Rejection Number II

(II) Claims 39, 77,120,139, and 158 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stockley III et al. (US 5686127) in view of Koch et al. (US 3459117) and Woodruff et al. (US 4522835) and Shaklai (US 6042859) as applied to claims 38, 40-56, 76, 78-86, 119, 121,123-138, 140, 142-157, 159, 161-168 above, further in view of Garwood (US 5629060).

Stockley teaches an oxygen impermeable second layer peelably adhered to an oxygen permeable first layer covering a meat tray under a modified atmosphere wherein removal of the second layer will result in exposing the meat to atmospheric oxygen, but are silent in teaching a pocket is formed between the two layers.

Garwood also teaches an oxygen impermeable second layer peelably adhered to an oxygen permeable first layer covering a meat tray under a modified atmosphere wherein removal of the second layer will result in exposing the meat to atmospheric oxygen. However, Garwood teaches that quite often the first layer is ruptured during the peeling of the second layer, and teaches forming a pocket between the two layers , via a rigid second layer a seal strip between the two layers , will minimize contact between the to layers and prevent the chance of rupturing the first layer while removing the second (Column 1, line 14 to Column 2, line 56, Column 2, line 49-65, Column 5, line 35 to Column 6, line 11). Therefore, it would have been obvious to modify the second layer of Stockley such that a pocket is formed between the first and second layer since Garwood teaches this will prevent rupturing the first layer during the peeling/removal of the second layer when exposing the meat in the tray to the atmosphere.

Shaklai is relied on as evidence that the color of meat pigment exposed to CO is *not* fixed the meat surface and that the meat surface will brown upon exposure to air depending on the time the meat is exposed to the CO (Column 8, lines 10-30). In Example 2, Shaklai teaches after storage for 30 minutes to CO, the meat became brown within 24 hours after exposure to air , which is "within a natural time period" since meat general may take up to 3 days after exposure to the air to brown.

(10) Response to Arguments

Appellant has structured their Arguments (see pages 5-22 of appellant's response) as follows:

I. Present Invention

II. General Law of Obviousness

III. Arguments with respect to independent claims 38, 76, 119, 138 and 157, and with respect to rejections (1) and (2).

IV. Arguments with respect to non-obviousness of dependent claims 39, 77, 120, 139 and 158.

V. Evidence of non-obviousness of independent claims 38, 76, 119, 138 and 157.

Sections I and II primarily provide background information and do not present any specific arguments. Therefore, the response to arguments will largely address sections III-V.

Response to Argument I:

On page 6, first paragraph, Appellant talks about "reduction or elimination of the seasoning period" and that the seasoning period can be reduced to one or two days "If a foam tray is not used". It appears that the appellant is relying on the above features but these features are not recited in the rejected claim(s). Appellant further states "Specifically, the color of the meat pigment after exposure to ambient temperature degrades in a fashion that is not beyond the point of microbial soundness, as if the CO had never been added to the modified packaging system" (Brief, page 6, last paragraph) whereas these features have not been recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

On page 6, second paragraph, Appellant states that "One important aspect of the present invention is that the present invention does not "fix" the color of the meat pigment to red with its use of carbon monoxide (CO), but rather the meat pigment tends to turn brown in a natural time period after removal of the second package that is substantially permeable to oxygen". However, as shown in the rejections above, the above said important aspect of the claimed invention is not novel (this is explained in more detail below with reference to arguments III-V).

Appellant further states (page 6, 2nd paragraph, last sentence) that "The term "fix" in this context does not mean that the color of the meat pigment never changes to brown color, but rather that the meat pigment does not turn brown in a natural time period after the meat pigment is exposed to atmosphere". It is noted that a "a natural time period" for the meat to turn brown as discussed above is variable because it is affected by a number of factors that vary in nature. For example, geographical location (i.e. a cold place like Alaska vs. a generally hot and humid place like Florida) or a specific season (e.g. winter or summer) can significantly change the natural time period in which meat turns brown or the time required for meat to become unfit for consumption. Other factors such as the size of meat cut (for example, ground meat vs. a single piece) or the type of meat (for example, beef vs. fish) also have an effect. The specification or the claims do not recite any specifics on how (or under what conditions) to determine the natural time period under variable natural conditions. Shaklai reference presents an example where a CO-treated meat sample that has turned red starts to reverse the color change after approximately 24 hours following exposure to air (Col. 8, lines 47-48), which is considered to be a natural time period since meat may generally take 3 or more days to naturally turn brown (allowing for the variability in natural conditions discussed above). Still further, it is noted that the claims do not specify the extent to which meat must "turn brown" and hence any extent of meat turning brown in a natural time period reads on "turns brown in a natural time period".

Response to Argument II:

Appellant argues that that "the Examiner has not set forth a prima facie case of obviousness" (Brief, pages 7-8). This argument is not persuasive and is discussed in response to the more specific arguments detailed in the following sections.

Response to Argument III:

Appellant argues regarding independent claims 38, 76, 119, 138 and 157, that "**It would not have been obvious to combine Stockley in view of other references such as Koch, Woodruff, and/or Shaklai to arrive at the present invention**". Appellant appears to arrive at the above conclusion because Appellant believes that the understanding of **those of ordinary skill in the art at the time of the invention was that CO "fixes" the color of the meat pigments and hence there would be "no motivation" to one of ordinary skill in the art for using CO in a modified atmosphere such as disclosed in Woodruff, Koch, and/or Shaklai with meat-packaging system such as disclosed by Stockley**". In other words, Appellant is arguing that it was not known in prior art that removal of modified atmosphere comprising CO will cause the color of the meat pigment on the surface of the meat to turn brown (i.e. change from the bright red carboxymyoglobin color to brown metmyoglobin color) (brief, pages 8-9).

This is not deemed persuasive for the following reasons:
The prior art of record currently applied in the rejection of the pending claims teaches that when raw meat is exposed to a modified atmosphere comprising CO, meat pigments are associated with CO forming carboxymyoglobin, which turns meat bright red. However, when the CO atmosphere is removed and meat is exposed to air, the dissociation of CO with the meat pigments is initiated and the meat starts to reverse its previously attained carboxymyoglobin red color. Shaklai reference presents an example where a CO-treated meat sample that has turned red starts to reverse the

color change after approximately 24 hours following exposure to air (Col. 8, lines 47-48). In other words, it was known in the art at the time of the claimed invention that CO exposure does not fix the color of the meat pigments, and that when exposed to air, the CO imparted color of meat pigments will start to reverse. Therefore, Appellant's assertion that the understanding of those of ordinary skill in the art at the time of the invention was that CO "fixes" the color of the meat pigments", is unsubstantiated.

Note that Stockley teaches the claimed elements of independent claims 38, 76, 119, 138 and 157 except Stockley is silent in teaching 0.1-0.8%,0.3-0.5% , or 0.1-0.5%, carbon monoxide in addition to the carbon dioxide and nitrogen or just carbon dioxide to form carboxymyoglobin, as recited in claims 38,50,55,56,76,85,86,119, 131,136, 137, 138, 150,155,156,157,167,168. Stockley is also silent about using an oxygen scavenger as recited in claims 43,80,124,143,162 to reduce the oxygen level. Stockley does not specifically state converting deoxymyoglobin directly to carboxymyoglobin as recited in claim 54,135,154 or oxymyoglobin to carboxymyoglobin as recited in claim 53,134,153, the particular level of carbon dioxide and nitrogen in combination as recited in claims 49, 83, 131,149, 165, and wherein the carbon monoxide is associated with the raw meat is adapted to be removable after the second layer is removed, as recited in claims 38,76,119,138, and157.

Koch is also treating red meat with carbon monoxide by providing a cover which when placed in contact with an exposed surface of red meat, releases CO into contact with the meat to form carboxymyoglobin on the surface of the meat (Column 1, lines23-50, Column 2, line 67 to Column 3, line3, Column 3, line 49 to column 4,line 10). Koch teaches that a meat surface that has been exposed to 0.08 cc of CO per square inch area can maintain the red meat color for 7 days during storage under a modified atmosphere with CO, will remain red in color for 3 days after being removed from the modified atmosphere packaged and packaged in conventional cover or wrapper at the retail outlet (Column 3, lines 4-16 and 41-45), i.e., meat exposed to ambient atmosphere after being exposed to CO will not remain red after 3 days at a retail

establishment. Thus, Koch provides evidence that CO is removably associated with a meat surface so that the meat browns "within a natural time period" because the meat generally has a shelf life of 3 days after being removed from the modified atmosphere package and placed in a conventional display wrapper.

Woodruff is introduced to show that a modified atmosphere for meat packaging, wherein the atmosphere comprises CO (which is the only aspect not taught by Stockley for the above mentioned claims), was known. In fact, Woodruff discloses a modified atmosphere comprising CO, wherein CO concentration may be as low as 0.1 vol % (Col. 2, lines 4-9), which falls in the Appellant's claimed range of "from about 0.01 to about 0.8 vol% carbon monoxide". Stockley modified in view of Woodruff thus teaches all the elements of independent claims 38, 76,119,138 and 157 . Other references are provided to show that it was known in the art that the association of CO with meat pigment is reversible and hence supports the motivation of combining the references.

Given that the method of manufacturing the modified atmosphere package taught by the combination of above references has the same steps, including the provision of the instantly claimed modified atmosphere and including a concentration of CO vol% that falls in the instantly claimed range, it follows that the raw meat will "turn brown" in the same or comparable time period as the Appellant's claimed invention.

Response to Arguments III A.

Appellant argues that **the problem of "Fixing" color is known to those of ordinary skill in the art citing declarations from various sources**. These declarations do not provide specific arguments that establish why the references provided in the rejection do not teach that association of CO with meat pigments is reversible.

Response to Arguments III B

Appellant alleges (page 11, 2nd paragraph, 1st sentence) that **none of the references of Shaklai, Koch, Woodruff teach "the claimed first and second packages"**. In response to Appellants above arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Shaklai, Koch, or Woodruff are not being relied upon to teach "the claimed first and second packages", as the package is taught by Stockley.

Under III B(i), appellant alleges (see page 11, 3rd paragraph of Appellant's response) that "**Shaklai teaches that CO "fixes" the color of the meat pigment after exposure to the atmosphere**". This argument is not persuasive. As stated before, Shaklai reference presents an example where a CO-treated meat sample that has turned red starts to reverse the color change after approximately 24 hours following exposure to air (Col. 8, lines 47-48). Clearly, Shaklai is teaching that at least under specific conditions, the CO does not fix the color of the meat pigment after exposure to atmosphere and that the reaction is reversible.

Appellant asserts that **"CO has an affinity 200 times greater than oxygen does with hemoglobin".** Whereas this is true, this does not imply that CO "fixes" the color of the meat pigment. Affinity of one compound towards another is only one of the factors that determines reaction kinetics and cannot by itself predict the outcome of the reaction or that the reaction is irreversible.

Appellant further argues that "There is no expectation in Shaklai that by applying the CO levels disclosed in Woodruff that the meat would brown in a natural time period". This argument is not persuasive. As pointed out earlier under Argument III, the reversibility

of a reaction is dependent on various factors, including initial concentration of reactants. It is well known that if the concentration of reactants is lowered, all other factors remaining constant, the rate of forward reaction (in this case, the reaction that imparts red color to meat pigment) is decreased. When conditions are changed so that reverse reaction starts (i.e. modified atmosphere comprising CO is removed), it would be expected that the meat would start to turn brown. Woodruff teaches that the level of CO selected depends on the particular type of meat treated (e.g. pork and lamb require less CO than beef); and (2) the time period between exposure to a non-carbon monoxide/non-oxygen atmosphere prior to exposing the meat to carbon monoxide (Example IV, V and VI). Shaklai teaches the time it takes for a meat surface to brown after removal from storage with CO depends on the extent to which the CO has permeated the meat; i.e. the extent to which the reaction has taken place. It is well known in the art that for any chemical reaction depends, among other things, on the concentration of the reactants (in this case, the vol. % or concentration of CO in the modified atmosphere for a given size/type of meat). Thus, there is a reasonable expectation in view of Shaklai that by applying the CO levels disclosed in Woodruff, the meat would brown in a natural time period. Further, given that Woodruff reference discusses various concentrations of CO that may be used under various conditions, including the CO concentration of about 0.1 vol% (Col. 2, lines 4-9), which falls in the Appellant's claimed range of "from about 0.01 to about 0.8 vol% carbon monoxide", it follows that the meat would brown in a natural time period that is comparable to what would be seen in the Appellant's claimed invention.

Under III B(ii), appellant **alleges that "Koch does not teach or suggest that the use of CO turns meat pigment brown in a natural time period after removal of its CO-containing film"**. In response to Appellant's above argument against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Koch is not being used in isolation but in conjunction with other

references like Stockley, Shaklai, and Woodruff. Koch teaches a meat surface that has been exposed to CO for 7 days during storage under a modified atmosphere will remain red in color for 3 days after being removed from the modified atmosphere package and packaged in conventional wrapper at the retail outlet (Column 3, lines 4-16). Thus, Koch provides evidence that CO is removably associated with a meat surface and does fix the color of the meat. Further, Woodruff reference discusses various concentrations of CO that may be used under various conditions, including the a CO concentration of about 0.1 vol % (Col. 2, lines 4-9), which falls in the Appellant's claimed range of "from about 0.01 to about 0.8 vol% carbon monoxide" that the Appellant claims enables meat pigment to turn brown in a natural time period.

Under III B(iii), appellant alleges that "**Woodruff does not teach or suggest that the use of CO turns meat pigment brown in a natural time period**". Again, in response to Appellants above arguments III B(iii) against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Woodruff is not being used in isolation but in conjunction with other references like Stockley, Shaklai, and Koch. It has already been established that the association of CO with meat pigments is reversible (see response to Argument III). Woodruff reference discusses various concentrations of CO that may be used under various conditions, including the CO concentration of about 0.1 vol % (Col. 2, lines 4-9), which falls in the Appellant's claimed range of "from about 0.01 to about 0.8 vol% carbon monoxide". Therefore, as the meat turns brown in a natural time period in the Appellant's claimed range of CO volume %, it follows that the meat would also turn brown in a natural time period in view of the modified atmosphere as taught by Woodruff.

Response to Arguments IV :

Appellant again argues that the problems of "fixing" color are known to those of ordinary skill in the art. This argument has already been addressed in section III. Appellant again argues the applied references of Stockley in view of Skaklai, Koch, Woodruff and Garwood do not teach or suggest that the use of CO turns meat pigment brown in a natural time period. This has already been discussed, especially in section III and also how the references are to be view in conjunction with each other and not in isolation.

Response to Arguments V A and B:

Appellant states that CO has not been allowed to be used with fresh meat in the United States for about 40 years. Appellant then states that "The concern of the FDA is believed to be that CO fixes the fresh meat color to a degree that allows a retailer to sell meat that looks good (a bright red color), but is unsafe and potentially dangerous to consume because it has unacceptable levels of bacteria". In response to Appellant's above argument that the references fail to show certain features of Appellant's invention, it is noted that the features upon which Appellant relies (i.e., CO fixes the fresh meat color to a degree that allows a retailer to sell meat that looks good, but is unsafe and potentially dangerous to consume because it has unacceptable levels of bacteria) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Regarding the **FDA regulation not allowing CO in meat storage,** this is not relevant to the issue of obviousness in this case because Patent law is independent from FDA regulatory law. This issue often is discussed with respect to the determination of pharmaceutical utility (MPEP 2107.01: Section V): "FDA approval, however, is not a prerequisite for finding a compound useful within the meaning of the patent laws." In re Brana, 51 F.3d 1560, 34 USPQ2d 1436 (Fed. Cir. 1995) (citing Scott v. Finney, 34 F.3d 1058, 1063, 32 USPQ2d 1115, 1120 (Fed. Cir.1994)).

Appellant then states that "**Once in retail display, the meat's myoglobin begins its natural conversion to metmyoglobin (brown)" (emphasis added)**. Thus, Appellant

appears to acknowledge that CO does not fix the color of meat and that the process is reversible (i.e., color of meat pigment is not "fixed") upon the removal of modified atmosphere comprising CO. Further, regarding the **FDA regulation, while CO was not allowed in meat storage the US**, this is not relevant to the issue of obviousness in this case because Patent law is independent from FDA regulatory law. This issue often is discussed with respect to the determination of pharmaceutical utility (MPEP 2107.01: Section V): "FDA approval, however, is not a prerequisite for finding a compound useful within the meaning of the patent laws." In re Brana, 51 F.3d 1560, 34 USPQ2d 1436 (Fed. Cir. 1995) (citing Scott v. Finney, 34 F.3d 1058, 1063, 32 USPQ2d 1115, 1120 (Fed. Cir.1994)). The cited references show that the claimed invention is not patentable.

Response to Arguments V C:

With respect to the present invention meeting a **long-felt need**, establishing long-felt need requires objective evidence that an art recognized problem existed in the art for a long period of time without solution. The relevance of long-felt need and the failure of others to the issue of obviousness depends on several factors. First, the need must have been a persistent one that was recognized by those of ordinary skill in the art. In re Gershon, 372 F.2d 535, 539, 152 USPQ 602, 605 (CCPA 1967). There is no evidence presented that this method is indeed more desirable (with respect to cost, food safety, etc.) than other methods for meat packaging, thereby raising doubts about the long-felt need of this specific method. Further, the comments appear to be addressed towards a system using 0.4 vol. % CO, which does not establish a long-felt need for the invention as claimed, since the claims address a broader range of CO from 0.01 to 0.8 vol. %.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jyoti Chawla

Conferees:

Keith Hendricks

Romulo Delmendo